REMARKS/ARGUMENTS

Reexamination of the captioned application is respectfully requested.

A. SUMMARY OF THIS AMENDMENT

By the current amendment, Applicants basically:

1. Editorially amend the specification to insert reference to a second reissue application in accordance with 37 CFR §1.177(a).
2. Entirely underline 34 – 51 claims, as required by enumerated paragraph 8 of the office action.
3. Amend independent claim 34, independent claim 43, and dependent claim 45.
4. Add new method claims 52- 60.
5. Respectfully traverse all prior art rejections.
6. Advise the Examiner of the simultaneous filing of a Statement Under 37 CFR §41.202.
7. Advise the Examiner of the simultaneous filing of an IDS to call attention to documents discussed in the Statement Under 37 CFR §41.202.
8. Advise the Examiner of the simultaneous filing of a Petition to Extend.

B. STATEMENT UNDER 37 CFR §41.202

In response to enumerated paragraph 10 of the office action, Applicants submit on even date herewith a separate document entitled "Statement Under 37 CFR §41.202", the entire content of which is incorporated herein by reference.

C. AMENDMENTS TO THE CLAIMS

Independent claim 34 has been amended in its penultimate paragraph to recite that the photo-imageable insulating layer on the substrate on areas adjacent "pixel electrode-

connected electrodes" of the transistors, rather than on areas adjacent "source" electrodes of the transistors. Moreover, the last paragraph of independent claim 34 has been amended to delete the adjective "source" which formerly modified "electrodes."

Independent claim 43 has been amended to specify that, in addition to being between said gate and data lines and said pixel electrodes at least in the areas of overlap, the photo-imageable insulating layer is also "in areas adjacent transistor electrodes which are in electrical communication with the pixel electrodes". This amendment makes independent claim 43 more consistent with claim 34.

Dependent claim 45 has been editorially amended to delete a superfluous percent sign.

D. THE NEW CLAIMS

New independent claim 52 is a method analogue of independent claim 43. Claims 53 – 60 depend from independent claim 52 and correspond to claims 44 – 51, respectively.

E. PATENTABILITY OF THE CLAIMS

Claims 34 – 51 stand rejected under 35 USC §102(e) as being anticipated by U.S. Patent 6,372,534 to den Boer. Claims 1 – 24 stand rejected under 35 USC §103(a) as being unpatentable over U.S. Patent 6,372, 534 to den Boer. All prior art rejections are respectfully traversed for at least the following reasons.

Claims 34 – 51

U.S. Patent 6,372,534 to den Boer is based on application 08/630,984, filed April 12, 1996. Applicants' priority documents JP 7-206367 and JP 7-254043, filed August 11, 1995 and September 29, 1995, respectively, pre-date the den Boer April 12, 1996 filing

date. Therefore, U.S. Patent 6,372,534 to den Boer should be removed as a reference. Moreover, although U.S. Patent 6,372,534 to den Boer claims benefit as a continuation-in-part (CIP) patent application of den Boer parent application 09/470,271, filed June 6, 1995, Applicants submit that features such as the photosensitivity and dielectric constant range included in Applicants' claims are absent from the den Boer parent application 09/470,271.

1. den Boer parent application 09/470,271 lacks photosensitivity and the dielectric constant range at issue

Applicants believe that the Examiner lacks a copy of parent den Boer parent application 09/470,271, and further suspect that the Examiner is using US Patent 6,376,270 to Gu et al. for the text of the parent den Boer parent application 09/470,271.

Both the den Boer parent application SN 09/470,271 and US Patent 6,376,270 to Gu et al. fail to teach or suggest several significant aspects of the claimed subject matter. In terms of claimed subject matter, among other things the den Boer parent application SN 09/470,271 and Gu:

(1) do *not* describe its "substantially transparent planarization or insulating layer 33" as a photosensitive resin or photo-imageable layer.

(2) describe the dielectric constant of its "substantially transparent planarization or insulating layer 33 as having a low dielectric constant (less than about ***3***.0)" [emphasis added, see page 20, lines 7+, as well as page 12, line 16; page 14, line 9; of SN 09/470,271]. In fact, in discussing a prior art reference, the den Boer parent SN 09/470,271 alleged that the dielectric constant of SiO_2 of about 3.9 was undesirably high and thereby caused capacitance C_{PL} to be too high [see page 10, lines 1+ of SN 09/470,271].

The fact is that, compared to U.S. Patent 6,372,534 to den Boer[1], both den Boer parent application SN 09/470,271 and US Patent 6,376,270 to Gu et al. conspicuously omits the "photosensitive resin" and any teaching of a dielectric constant above 3.0.

In the above regard, regarding the lack of mention of "photosensitive resin" and the dielectric constant in US Patent 6,376,270, the next page of this document shows a side-by-side comparison of col. 6, lines 23 through col. 6, line 45 of U.S. Patent 6,372,534 to den Boer with the corresponding paragraph in US Patent 6,376,270. In the comparison, example text found in U.S. Patent 6,372,534 to den Boer but *not* found in US Patent 6,376,270 is *italicized*. On the other hand, some of the salient text of US Patent 6,376,270 not included in U.S. Patent 6,372,534 to den Boer (which shows a narrower range of dielectric constant) is underlined. The comparison on the next page is only one instance that emphasizes the deficiencies of US Patent 6,376,270 with respect to the claimed subject matter.

2. Gu makes a distinction between photo-imageable and non photo-imageable BCB

Mere mention by US Patent 6,376,270 to Gu et al. or den Boer parent application SN 09/470,271 of Benzocyclobutene (BCB) does *not* provide a basis for rejecting Applicants' reissue claims. In fact, Gu expressly refutes any notion that BCB is inherently photo-imageable.

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[1] The deficiencies of U.S. Patent 6,372,534 to den Boer are shared by other den Boer CIP applications which branched off the den Boer parent application SN 09/470,271, including U.S. Patent 6,372,534 to den Boer, as explained in an April 17, 2007 Request for Reconsideration filed in companion reissue application 10/915,717.

U.S. Patent 6,372,534

Substantially transparent insulating layer 33 having a dielectric constant less than about 5.0 is deposited as a sheet on substrate 19 so as to cover TFTs 9 and address lines 5 and 7. *Layer 33 is formed of a photo-imageable material such as Fuji Clear.TM. or a photo-imageable type of BCB.* Insulating layer 33 is continuous in the viewing area of the display except for vias or contact holes 35 and 36 formed therein to allow pixel electrodes 3 to contact corresponding TFT source electrodes and the storage capacitor electrodes respectively (i.e. each pixel includes two vias (35 and 36) in insulating layer 33--one for the source electrode and the other for the storage capacitor).

Layer 33 has a dielectric constant .epsilon. *less than or equal to about 5.0* according to certain embodiments of this invention. In certain preferred embodiments, layer 33 has a dielectric constant of about 2.7 and is made of a *photo-imageable* type of Benzocyclobutene (BCB), an organic material available from Dow Chemical, for the purpose of reducing capacitive cross-talk (or capacitive coupling) between pixel electrodes 3 and the address lines in overlap areas 18. Layer 33 has a low dielectric constant and/or a relatively large thickness for the specific purpose of reducing C_{PL} in overlap areas 18.

US Patent 6,376,270

Substantially transparent planarization or insulating layer 33 having a low dielectric constant (less than about 3.0) is deposited on substrate 19 so as to cover TFTs 9 and address lines 5 and 7. Layer 33 is continuous in the viewing area of the display except for vias formed to allow pixel electrodes 3 to contact the TFT source electrodes and the storage capacitor electrodes. Planarization layer 33 has a dielectric constant ε less than or equal to about 3.0 according to certain embodiments of this invention. In more preferred embodiments, layer 33 has a dielectric constant of about 2.7 and is made of Benzocyclobutene (BCB) for the purpose of reducing capacitive cross-talk (or capacitive coupling) between pixel electrodes 3 and the address lines in overlap areas 18. In other words, layer 33 has a low dielectric constant (e.g. 2.7) and relatively large thickness for the specific purpose of reducing C_{PL} in overlap areas 18. BCB (an organic material) is produced and is commercially available from Dow Chemical. Other known substantially transparent planarization layers used in the semiconductor and MCM industries may also be used as layer 33 according to alternative embodiments of this invention.

In U.S. Patent 6,372,534 and its contemporaries (but not its parent), Gu persistently refers to a *photo-imageable* type of Benzocyclobutene (BCB). *See*, e.g., the passages cited in the foregoing claim chart. By so conspicuously employing the modifier phrase "*photo-imageable* type", Gu admits that BCB can also be non photo-imageable.

What is admitted by Gu in U.S. Patent 6,372,534 and elsewhere is expressly confirmed by Gu in US Patent 6,011,274:

Substantially transparent insulating layer 33 having a dielectric constant less than about 5.0 (preferably less than about 4.0 and most preferably less than about 3.0) is deposited as a sheet on substrate 19 so as to cover inorganic intermediate insulating layer 32, TFTs 9, and address lines 5 and 7. organic layer 33 is formed of a photo-imageable material such as Fuji Clear™ or a photo-imageable type of BCB. Substantially transparent layer 33 may also be formed of a ***non-photo-imageable*** *type of BCB*. … (col. 6, lines 59 – 67, emphasis supplied).

Therefore, in view of a distinction admitted by Gu himself, US Patent 6,376,270 does not have Applicants' claimed photosensitive resin/photo-imageable insulating layer.

Since the den Boer parent application and US Patent 6,376,270 (1) do not disclose its "substantially transparent planarization or insulating layer 33" as a photosensitive resin and (2) describe the low dielectric constant of less than or equal to about 3.0 (and consider a dielectric constant of about 3.9 undesirably high (which results in a capacitance that is too high), neither the den Boer parent application SN 09/470,271 nor US Patent 6,376,270 anticipate or provide any basis for denying patentability to Applicants' claims. Accordingly, U.S. Patent 6,372,534 to den Boer must be removed as a reference and the den Boer parent application SN 09/470,271 and US Patent 6,376,270 to Gu et al. provide no basis for rejecting Applicants' reissue claims.

In contrast to the den Boer parent application SN 09/470,271 and US Patent 6,376,270 to Gu et al., Applicants' priority documents fully support Applicants' reissue

claims including the photosensitivity and claimed dielectric range. In this regard, verified translations of Applicants' priority documents JP 7-206367 and JP 7-254043 (MPEP §201.15) have been submitted in reissue application 10/915,717. Copies of the verified translations of Applicants' priority documents JP 7-206367 and JP 7-254043 are now submitted for the file of the captioned application as well.

Claims 1 – 24

Claims 1 – 24 stand rejected under 35 USC §103(a) as being unpatentable over U.S. Patent 6,372, 534 to den Boer. This prior art rejection is also respectfully traversed. In fact, this battle has essentially already been fought and won in issuance of US Patent 6,433,851.

In the prosecution of US Patent 6,433,851 (application 09/757,477), an April 19, 2001 office action alleged that application claims 40 and 53, identical to independent claims 1 and 14 of the present reissue application, were unpatentable over US Patent 5,641,974 to den Boer et al in view of US Patent 5,003,346 to Wakai et al. (see pages 10 – 11 of the April 19, 2001 office action). Without amending the independent claims then at issue, Applicants argued in a September 19, 2001 Amendment that the independent claims distinguished over den Boer. The prior art rejection was withdrawn, resulting in issuance of US Patent 6,433,851 which includes original claims 1 – 24 of this reissue application.

US Patent 5,641,974 to den Boer et al has substantially the same subject matter as the den Boer patent which is now applied in rejecting original claims 1 – 24 (i.e., U.S. Patent 6,372, 534 to den Boer). Accordingly, the present prior art rejection of original claims 1 – 24 should be withdrawn to give full faith and credit to the previous prosecution.

Moreover, the current office action includes many incorrect allegations regarding U.S. Patent 6,372, 534 to den Boer. A few example mischaracterizations of U.S. Patent 6,372, 534 to den Boer are now specifically traversed, with leave being requested to provide a full traversal of U.S. Patent 6,372, 534 to den Boer should such become necessary in the future.

In the above regard, the office action incorrectly alleges that U.S. Patent 6,372, 534 to den Boer teaches a "photosensitive organic transparent interlayer insulating film (33)". As explained above with reference to claims 34 – 51, the den Boer "photosensitive" subject matter had its genesis with April 12, 1996 continuations in part, and such photosensitive subject matter is not disclosed prior to Applicants' foreign priority dates. This fact was presented in the prosecution of US Patent 6,433,851 and accepted as overcoming the den Boer reference there applied.

Further, the February 6, 2007 office action admits that U.S. Patent 6,372, 534 to den Boer lacks the insulation layer being colorless. In actuality, U.S. Patent 6,372, 534 to den Boer lacks a teaching or suggestion of, e.g., a transparent colorless interlayer organic insulating film, formed from a cured organic polymer and having a thickness determined by a light transmittance and a dielectric constant of the film, and with a spectral transmittance of the transparent interlayer organic insulating film having a lower transmittance for blue light than that for green and red light.

The February 6, 2007 office action appears to allege that since increasing the thickness of an insulating layer lowers transmittance, and since blue has the lowest transmittance of the primary colors, it would b obvious to provide a lower transmittance for blue light than for green and red light. Applicants have successfully refuted a similar allegation previously in the prosecution of US Patent 6,433,851 (see Amendment filed September 19, 2001, pages 5+) and reiterate the traversal. As explained in the Amendment filed September 19, 2001 for US Patent 6,433,851 (such Amendment being incorporated herein by reference), Applicants recognized that an interlayer insulating film with high transmittance for red and green light, and a lesser transmittance for blue light, would still yield a good display having an interlayer insulation film that appears to be transparent to the human eye. Applicants transformed a problem, e.g., poor blue transmittance, into an advantage: an interlayer insulating film having a relative poor blue transmittance is advantageous with respect to short production times for making the LCD. Applicants also discovered that poor blue transmittance is not visually perceptible. Applicants' discovery is patentable subject matter that is not rendered obvious by what the office action now contends is a motivation for increased brightness, lower amount of light from backlight, power consumption and the like. A desire to have a higher level of brightness, lower backlight, or reduced power consumption does not render an invention

capable of obtaining a relatively poor blue transmittance obvious. There is no prior art teaching or suggestion that a relatively poor blue transmittance is desirable.

Accordingly, the prior art rejections of original claims 1 – 24 should be withdrawn in view of the prior prosecution and technical deficiencies of the present rejections.

F. MISCELLANEOUS

In view of the foregoing and other considerations, all claims are deemed in condition for allowance. A formal indication of allowability is earnestly solicited.

The Commissioner is authorized to charge the undersigned's deposit account #14-1140 in whatever amount is necessary for entry of these papers and the continued pendency of the captioned application.

Should the Examiner feel that an interview with the undersigned would facilitate allowance of this application, the Examiner is encouraged to contact the undersigned.

Respectfully submitted,

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